THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 34

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ALPHONS A. J. A. PRINSSEN

Appeal No. 1997-3267
Application 08/324,386

ON BRIEF

Before COHEN, FRANKFORT and JENNIFER D. BAHR, Administrative Patent Judges.

FRANKFORT, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on an appeal from the examiner's

the final rejection in a paper filed May 6, 1996 (Paper No. 25). Claims 1 through 3 have been canceled.

Appellant's invention pertains to a filtering device and method using a high pressure chamber for separating liquid and solid material from a mixture wherein a component of the mixture can pass into a gaseous phase at ambient temperature and atmospheric pressure. By placing the mixture being separated under a higher pressure than the lowest evaporation pressure of any of the mixture's components, no component of the mixture can pass to the gaseous phase. Independent claims 4, 7 and 10 are representative of the subject matter on appeal and copies of these claims, as reproduced from the Appendix[1] of appellant's amendment after final (Paper No. 25, filed May 6, 1996), are attached to this decision.

The references of record relied upon by the examiner in support of rejections under 35 U.S.C. § 102(b) and 35 U.S.C. § 103 are:

Oosten	4,038,193	July 26, 1977
Stahl[2] (German Offenlegungsschrift)	2,947,329	May 27, 1981

Claims 4 through 6 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to provide support for the invention now claimed.

Claims 4 and 6 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Stahl.

Claims 5, 7, 8 and 10 stand rejected under 35 U.S.C. § 103 as being unpatentable in view of Stahl.

Claims 9 and 11 stand rejected under 35 U.S.C. § 103 as being unpatentable over Stahl in view of Oosten.

Rather than reiterate the examiner's full statement of the above-noted rejections and the conflicting viewpoints advanced by the examiner and appellant regarding the rejections, we make reference to the examiner's answer (Paper No. 22, mailed January 30, 1996) and the examiner's supplemental answer (Paper No. 31, mailed August 6, 1996) for the reasoning in support of the rejections, and to appellant’s brief (Paper No. 21, filed January 11, 1996), and reply briefs (Paper No. 23, filed March 21, 1996 and Paper No. 30 filed July 26, 1996) for the arguments thereagainst.

OPINION

In reaching our decision in this appeal, we have given careful consideration to appellant’s specification and claims, to the applied prior art references, and to the respective positions articulated by appellant and the examiner. As a consequence of our review, we have made the determinations which follow.

Preliminary to treating the examiner’s rejections of

and 6 stand or fall together, that claims 8 and 10 stand or fall together, that claims 9 and 11 stand or fall together and that claims 5 and 7 each stand or fall alone.

We will first address the rejection of claims 4 through 6 under 35 U.S.C. § 112, first paragraph. The examiner objects to the specification as originally filed for failing to provide a basis for "the mixture of liquid and solid materials [being] added into the filter box at a pressure higher than atmospheric" (answer, page 3). As a result of the objection, the examiner rejects claims 4 through 6 under 35 U.S.C. § 112, first paragraph, which claims include the limitation of supplying a mixture of liquid and solid materials at higher than atmospheric pressure into the pressure chamber on an upper side of said filter belt. The appellant's argument, in response, is that

> one of ordinary skill in the art would understand from the specification that the mixture for separation is maintained under relatively higher pressure both when supplied to the pressure chamber and within the pressure chamber itself. The fact that there may be other methods of supplying the mixture

We agree with the appellant. Although, arguably, there may be other methods of supplying the mixture to the pressure chamber, we believe that a person of ordinary skill in the art would have known that any method for feeding the mixture into the high pressure chamber of the appellant's claimed method and device would necessarily require forcing the mixture into the high pressure chamber at a pressure the same as or slightly higher than the pressure maintained in the chamber to allow for adequate forward flow of the mixture into the chamber. The mixture could not enter the chamber at a lower pressure than that maintained in the chamber since the force of the pressurized air at the mixture inlet would obstruct entry of the mixture into the chamber. Therefore, we reverse the examiner's rejection of claims 4 through 6 under 35 U.S.C. § 112, first paragraph.

Next, we will address the rejection of claims 4 and 6 under 35 U.S.C. § 102(b) based on Stahl. Stahl teaches an arrangement and method for filtration including a pressurizing source (26), a vacuum chamber or suction box (23) and a source

in a closed space under a positive pressure with respect to the open air" (translation, page 5) and "feeding of the filter in the arrangement . . . can be done . . . [with] the aid of pumps . . . such that the positive pressure in the positive pressure chamber is taken into account" (translation, page 7). Stahl further shows, in Figure 2, an embodiment having a "product space [that] is kept higher than atmospheric pressure" and where it is "preferable to use an arrangement which is distinguished by the fact that the pressure difference between the space kept under positive pressure and the product space in a subterranean tunnel can be adjusted up to a maximum value which can be selected exclusively according to the requirements of the filtration problem" (translation, page 7). The appellant argues that there is no teaching or suggestion within Stahl for supplying the feedstock (25) to the enclosed pressure space at a pressure greater than atmospheric and that it is clear that the material to be separated is only subjected to the positive pressure when in the positive pressure chamber and not in the prior supply portions, hence the need for the supply pumps to take the

We do not find appellant's arguments convincing. Stahl teaches the mixture (suspension feedstock 25) being fed through the pressure resistant wall (29') without problems and in the usual manner with pumps in order to deliver the mixture to the belt filter (20) (translation, pages 7 and 12). We are convinced that a person of ordinary skill in the art would have understood from the specification of Stahl that the mixture for separation is maintained under higher pressure than atmospheric when supplied to a chamber pressurized to above atmospheric pressure to thereby prevent backflow. Ultimately, we consider that an artisan would have understood the mechanism for supplying the mixture to the pressurized chamber of the prior art to operate in the same manner that we have concluded supra was implicitly disclosed by the appellant's specification. Therefore, we will affirm the examiner's rejection of claims 4 and 6 under 35 U.S.C. § 102(b) as anticipated by Stahl.

Next, we will address the rejection of claims 5, 7, 8 and 10 under 35 U.S.C. § 103(a) based on Stahl. Claim 5 depends

pressure difference between the pressure in the pressure chamber and the pressure in the suction box being "roughly 1-2 bar."[3] We agree with the examiner's position that the 20 bar parameter in combination with a pressure difference of 1-2 bar is one which "would have been routinely optimized by one having ordinary skill in the art at the time the invention was made" (answer, page 4).

The appellant argues that there is no suggestion in Stahl to utilize the very high pressure of 20 bar and moreover to utilize both an exceptionally high pressure of 20 bar in the pressure chamber and a difference between the pressure in the pressure chamber and the pressure in the suction box of 1-2 bar. The appellant understands Stahl to teach (brief, pages 9-11) a pressure chamber intended to be raised to only slightly elevated pressures instead of the 20 bar required in the pressure chamber as set forth in claim 5 on appeal. Furthermore, the appellant argues that Stahl is limited to slightly elevated pressures since Stahl teaches a product space to be maintained under atmospheric pressure and thus a positive pressure of only 1.5 bar which

We do not agree with the appellant's interpretation of the prior art. First, we do not find that Stahl teaches only a product space at below atmospheric pressure as suggested by appellant throughout the briefs. Nor, do we understand Stahl to "clearly indicate[] that the pressure difference between the slightly elevated positive pressure in the pressure chamber and the subatmospheric pressure in the product space can be selected according to [the] filtration problem[]" (emphasis ours) (reply brief, Paper No. 23, page 4). Appellant repeatedly contends that Stahl indicates that the pressure is only slightly elevated without any reference to a specific passage in Stahl teaching such limitation. We find no such limiting teaching in Stahl.

With respect to the embodiment shown in Figure 2, Stahl specifically states that the pressure differential between the space under positive pressure and the product space can be adjusted up to a maximum value that can be selected exclusively according to the requirements of the filtration problem (translation, pages 3 and 7). Throughout the specification, as

space are adjustable. Some examples are: on page 5, “a product space under a specifiable pressure”; on page 8, “the crucial product space is kept either at atmospheric pressure or at a pressure higher or lower than atmospheric pressure”; and on page 9 “the positive pressure can be adjusted according to requirements" and "the desired pressure differential can be adjusted independently of one another.” Furthermore, Stahl specifically teaches appellant’s limitation of a pressure differential of 1-2 bar on pages 5-6 of the translation. We further understand Stahl to teach a closed system where the positive pressure and the pressure at the vacuum filter is settable to any pressure known in the art to solve a particular filtration problem. Specifically, claim 11 of Stahl, rewritten to include all the limitations of the claims from which it depends, is as follows:

> Arrangement for filtration, in which in a filter constructed in its design as a vacuum filter, solid particles are to be filtered out of a fluid with the assistance of a porous material layer, in particular a filter cloth serving as filtering means, characterized in that the entire vacuum

> . . . the product space is kept at a pressure higher than atmospheric pressure [,] . . . the pressure differential between the space (46) under positive pressure and the product space can be adjusted in a tunnel arranged underground, up to a maximum value that can be selected exclusively according to the requirements of the filtration problem.

Finally, Stahl teaches that a benefit of his arrangement is that "the attainable positive pressure in an arrangement for cake formation and suction drying . . . is no longer absolutely limited by the vapor pressure. Rather, the positive pressure can be adjusted according to the requirements [of the filtration problem]" (translation, page 9). Therefore, we concur with the examiner that a person of ordinary skill in the art would have known to select a positive pressure, including 20 bar, to optimize solving a particular filtration problem while maintaining a pressure differential within the range of 1-2 bar. We find the examiner's position to be well founded, notwithstanding appellant's arguments to the contrary. Therefore, we will affirm the examiner's rejection of claim 5.

broader than claim 5 since it does not require the mixture to be fed into the chamber at higher than atmospheric pressure and does not require the pressure difference to be 1-2 bar but only to be "relatively small." Therefore, we will affirm the examiner's rejection of claim 7 applying our same reasoning used in sustaining the rejection of claim 5. Claim 8, which depends from claim 7, includes the pressure difference to be 1-2 bar which has been previously discussed and shown to be taught or suggested in Stahl. Therefore, we will also sustain the examiner's rejection of claim 8 applying the rationale set forth with respect to claim 5. Appellant has stated on the record that claim 10 falls with claim 8 and therefore we will affirm the examiner's rejection of claim 10.

Finally, we will address the rejection of dependent claims 9 and 11 under 35 U.S.C. § 103(a) based on Stahl in view of Oosten. Claim 9 includes the additional method limitations of the suction box 1) creating a pressure differential between the pressure in the suction box and pressure in the pressure chamber

connected to the filter belt, 3) increasing the pressure in the suction box to decouple the suction box and the filter belt and 4) moving the suction box relative to the pressure chamber to return the suction box to the first position. Claim 9 also includes a fifth step which repeats steps 1-4. Appellant's primary argument (brief, page 13) concerning the examiner's rejection relies on Stahl and Oosten teaching the suction box being maintained at below atmospheric pressure, which in appellant's view teaches away from appellant's filtration device and method as defined in claims 9 and 11 on appeal.

We believe the appellant has not fairly assessed the collective teachings of the applied prior art. As previously discussed, Stahl expressly teaches the vacuum or product space being at a pressure above atmospheric. Oosten teaches

> FIGS. 1a, b, c and d show the operation of a device in accordance with the known art. A mixture supply nozzle 1 applies a mixture layer 2 to an endless filter belt 3, which is guided along rollers 4 and 5 to be driven. A suction box 6, adapted to move parallel to the belt, communicates through a flexible

> the arrow. At the end of the suction stroke as illustrated in FIG. 1b, the subatmospheric pressure is obviated by the supply of air so that the filter belt and the suction box are disengaged and the suction box is returned by a mechanism (not shown) to the initial position (column 1, line 62, through column 2, line 9).

Although Oosten teaches the vacuum being at below atmospheric pressure, Oosten also teaches at column 3, lines 6-8, "[t]he whole device may be surrounded by a cabinet (not shown) for operation, for example, in a nitrogen atmosphere, for example, at excess pressure."

We are not convinced by appellant's argument that Stahl and Oosten teach away from the device and method claimed by the appellant. Both references teach a closed system at excess or positive pressure. We conclude that a person of ordinary skill in the art would have been led to the appellant's invention of claim 9 given the collective teachings of the applied prior art. Therefore, we will sustain the examiner's rejection of claim 9. The examiner's rejection of claim 11 which falls with claim 9

To summarize, the examiner's rejection of claims 4 through 6 under 35 U.S.C. § 112, first paragraph, has been reversed. The examiner's prior art rejections of claims 4 through 11 are affirmed. Accordingly, the decision of the examiner is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED

IRWIN CHARLES COHEN)
Administrative Patent Judge)
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) BOARD OF PATENT
CHARLES E. FRANKFORT) APPEALS AND
Administrative Patent Judge) INTERFERENCES
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Appeal No. 1997-3267
Application 08/324,386

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APPENDED CLAIMS

4. A filtration method for separating liquid and solid materials from a mixture, comprising the steps of:

providing a pressure chamber containing an endless filter belt and a suction box;

supplying a mixture of liquid and solid materials at higher than atmospheric pressure into said pressure chamber on an upper side of said filter belt;

connecting said suction box onto an underside of said filter belt; and

maintaining a higher than atmospheric pressure in said pressure chamber and a relatively small difference between the pressure in said pressure chamber and the pressure in said suction box.

7. A filtration method for separating liquid and solid materials from a mixture, comprising the steps of:

providing a pressure chamber containing an endless filter belt and a suction box therein;

supplying a mixture of liquid and solid materials on a first side of said filter belt;

connecting said suction box to an underside of said filter belt; and

maintaining a higher than atmospheric pressure in said pressure chamber of roughly 20 bar and a relatively small difference between said pressure in said pressure chamber and the pressure in said suction box when said suction box is connected to the underside of said filter belt.

means for supplying a mixture of liquid and solid material to a first side of said filter belt;

means for connecting said suction box to an underside of said filter belt; and

means for maintaining a higher than atmospheric pressure in said pressure chamber of about 20 bar and a relatively small difference of about 1-2 bar between the pressure in said pressure chamber and the pressure in said suction box when said suction box is connected to an underside of said filter belt.